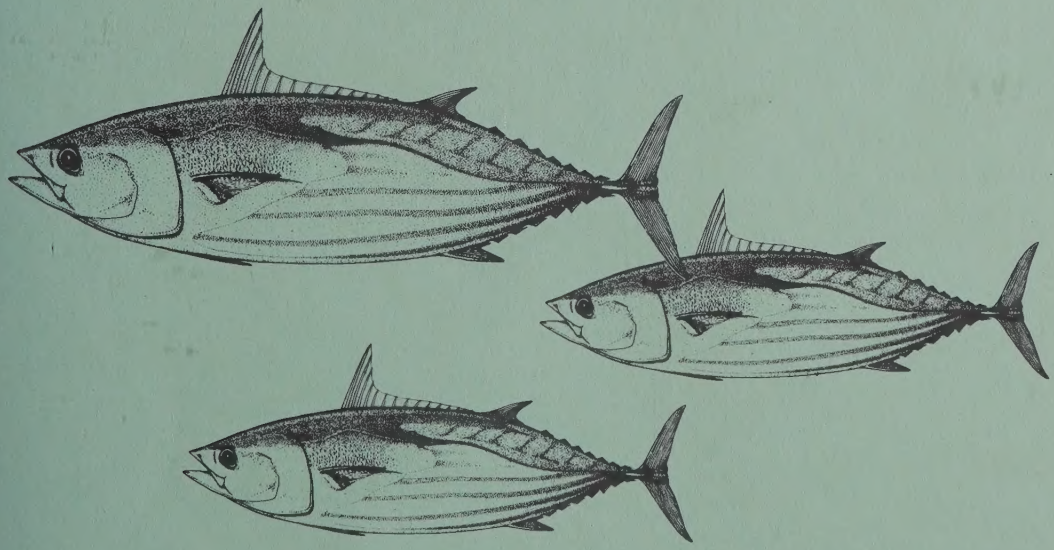
JUNE 1977
No. 6

FISHING INFORMATION

Southwest Fisheries Center-La Jolla, California



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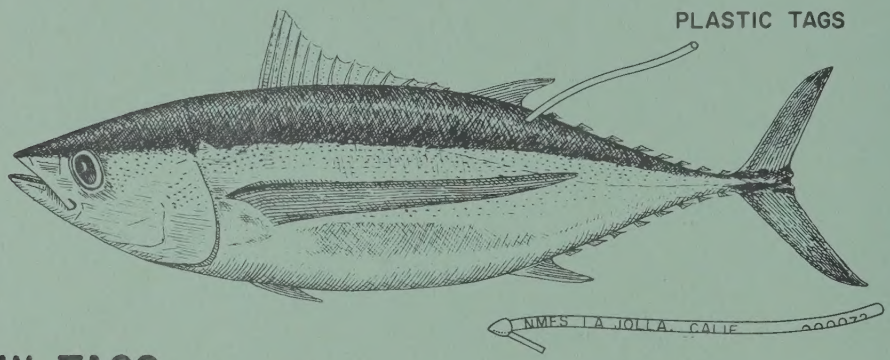
$ REWARD $

FOR ALBACORE TUNA TAGS



YELLOW TAGS

THE NATIONAL MARINE FISHERIES SERVICE WILL PAY $ 2.00 FOR EACH YELLOW TAG RECOVERED. (NO NEED TO RETURN FISH)

RECORD:

- WHERE
- WHEN
- HOW

} *FISH WAS CAUGHT*

- LENGTH OF FISH (TIP OF LOWER JAW TO FORK OF TAIL)

FORWARD TO NMFS ADDRESS ON TAG

RED TAGS

THE NATIONAL MARINE FISHERIES SERVICE WILL PAY $ 50.00 FOR EACH RED TAG & FISH RETURNED. (FISH WITH TAG INTACT MUST BE RETURNED)

RECORD:

- WHERE
- WHEN
- HOW

} *FISH WAS CAUGHT*

- LENGTH OF FISH (TIP OF LOWER JAW TO FORK OF TAIL)

NOTIFY NMFS P.O. BOX 271, LA JOLLA, CA. TEL. (714) 453-2820

THE AMERICAN FISHERMEN'S RESEARCH FOUNDATION WILL AWARD CASH PRIZES FOR YELLOW & RED TAG NUMBERS DRAWN IN AN ANNUAL LOTTERY.

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NATIONAL MARINE FISHERIES SERVICE
SOUTHWEST FISHERIES CENTER
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LA JOLLA, CALIFORNIA 92037

FISHING INFORMATION

JUNE 1977, No. 6

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PREFACE

This publication, Fishing Information, appears monthly and contains 1) fishery advisory information, 2) a narrative description of pertinent surface temperature conditions, 3) charts of winds and pressures for the eastern North Pacific, 4) charts of sea surface temperature for the North Pacific and eastern tropical Pacific, and 5) charts of subsurface temperature structure in the eastern North Pacific.

A supplement to Fishing Information appears at 15-day intervals throughout the year. It contains a chart of sea surface temperature (contoured at 2°F (1°C) intervals) from Baja California to Vancouver Island out to about 135°W. Special bulletins are published in conjunction with the 15-day sea surface temperature charts which include short-term projections of albacore distribution and locations of productive fishing areas, information on oceanographic and atmospheric conditions, and other information as is appropriate during the albacore fishing season.

The Secretary of Commerce has determined that the publication of this periodical is necessary in the transaction of the public business required by law of this Department.

Submitted for publication - July 21, 1977

CONTENTS

		Page
Acknowledgements		iv
Sea Surface Temperature and Environmental Conditions - June 1977, Forrest R. Miller		1
ENVIRONMENTAL CHARTS, PACIFIC OCEAN - June 1977		
Figure 1.	Sixteen-year mean (1961-1977) observed sea level values of barometric pressure (millibars), resultant wind direction (degrees true), resultant wind speed (knots) and average winds speed (knots) regardless of direction.	4
Figure 2.	Observed sea level values of barometric pressure (millibars), resultant wind direction (degrees true), resultant wind speed (knots) and average wind speed (knots) regardless of direction.	5
Figure 3.	Mean sea surface temperature, eastern North Pacific Ocean. Square shows temperatures at weathership station. Numerals on shore are temperatures at coastal and lightship stations.	6
Figure 4.	Mean sea surface temperature chart, western North Pacific Ocean.	7
Figure 5.	Deviation of sea surface temperatures, eastern North Pacific Ocean from 20-year mean (1948-67). Hatched areas are colder in 1977.	8
Figure 6.	Deviation of sea surface temperatures, western North Pacific Ocean from 20-year mean (1948-67). Hatched areas are colder in 1977.	9
Figure 7.	Deviation of sea surface temperatures, eastern North Pacific Ocean from those of June 1977. Hatched areas are colder in 1977.	10
Figure 8.	Mean sea surface temperatures, eastern tropical Pacific Ocean. Numerals on shore are temperatures at coastal stations.	11
Figure 9.	Deviation of sea surface temperatures, eastern tropical Pacific Ocean from 20-year mean (1948-67). Shaded areas are colder in 1977. Contours are dashed in sparse data areas.	12
Figure 10	Surface temperature and salinity and subsurface temperature structure from expendable bathythermograph observations between Seattle and Honolulu, June 11-18, 1977.	13
Figure 11	Surface temperature and salinity and subsurface temperature structure from expendable bathythermograph observations between San Francisco and Honolulu, June 9-15, 1977.	14

ENVIRONMENTAL CHARTS ANALYZED BY:

F. Miller (Figures 8 and 9)
J. Renner (Figures 1, 2, 3, 4, 5, 6, 7, and 15 day Supplement)

TECHNICAL EDITOR:
R. Allen
CARTOGRAPHY:
R. Allen, H. Orr

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    National Weather Service, San Diego, California and Washington, D.C.
    National Ocean Survey, Pacific Marine Center, Seattle, Washington

Fisheries Research Board of Canada, Pacific Environment Institute, West Vancouver, British Columbia by L.F. Giovando from observations by
    L. Sabourin at Langara Island Light; D.C. Robinson at Cape St. James Light;
    L. Collins at Kains Island Light; I.G. McNeil at Amphitrite Point Light
Scripps Institution of Oceanography, La Jolla, California

Expendable bathythermograph and salinity observations are made by the mates and engineers of the *Californian* and *Hawaiian Queen* of the Matson Navigation Co. The data are processed under supervision of D.R. McLain at the NMFS Pacific Environmental Group, Monterey, California, using computer facilities of the Fleet Numerical Weather Central, Monterey. The project is partially supported by the National Science Foundation and the Office of Naval Research.

Sea Surface Temperature and Environmental Conditions

Forrest R. Miller

Eastern North Pacific

During June 1977 the eastern Pacific subtropical high pressure system (Figure 2) was similar to the 17-year mean pressure circulation shown in Figure 1. One exception to this was between 125°W and 135°W to the north of 35°N where surface pressures were slightly above normal due to periodic movements of the subtropical high pressure center to the northeast of its normal position. There were no unusually intensive low pressure systems in the north Pacific in June.

Sea surface temperatures (SST) between 130°W and 140°W and north 35°N warmed slightly faster than normal as indicated by the northward bulge of isotherms in Figure 3 and the areas of positive departures from normal in Figure 5. Along the U.S. west coast persistent and stronger than normal northerly winds caused SST's to warm at below normal rates, especially in areas where ocean mixing and coastal upwelling was pronounced (Figure 5). Along the Oregon and southern California coasts SST's were colder in June 1977 than in June 1976, and warmer off central and northern California and along the coasts of Washington and British Columbia (Figure 7).

In the central Pacific from 30°N to 45°N SST's remained significantly below normal (Figure 5) over large areas, as they have been for the entire year of 1977. The largest negative departure of SST's in June 1977 from those in June 1976 were centered around 40°N from 140°W to 180°W (Figure 7). During June surface winds and cloud cover were greater than normal over most of this area and contributed to maintaining below normal SST's.

In the subtropical region south of 30°N and east of 135°W SST's were above normal and warmer than in June 1976, primarily caused by the northeastward movement of the high pressure center and slightly below normal cloud cover and wind speeds. In the central Pacific south of 25°N the northeast trade winds were near normal and cloud cover was light. Therefore, SST's warmed at rates greater than normal and significantly reduced the negative departures of SST's from May 1977.

Western North Pacific

The strong north-south temperature gradient from 40°N to 45°N and east of 160°E in Figure 4 separated the slightly above normal SST's of the north Pacific water from near or below normal central Pacific water. In the central Pacific from 30°N to 40°N low pressure systems frequently developed between 160°E and 175°E. The above normal surface winds around the lows caused considerable mixing in the surface layers of the ocean, and SST's from 30°N to 35°N were more than 1°C below normal over a larger area than in May 1977. From 28°N to 32°N and east of 150°E the southern ocean front between central Pacific and tropical Pacific water was unusually prounounced in June. Along most of the east coast of Japan the SST pattern (Figure 4) reflected an increase at above normal rates (Figure 6). To the south of 30°N alternating areas of negative and positive departures of SST's were indicative of near normal surface winds and weather in the subtropical high pressure ridge which extended east to west near 25°N.

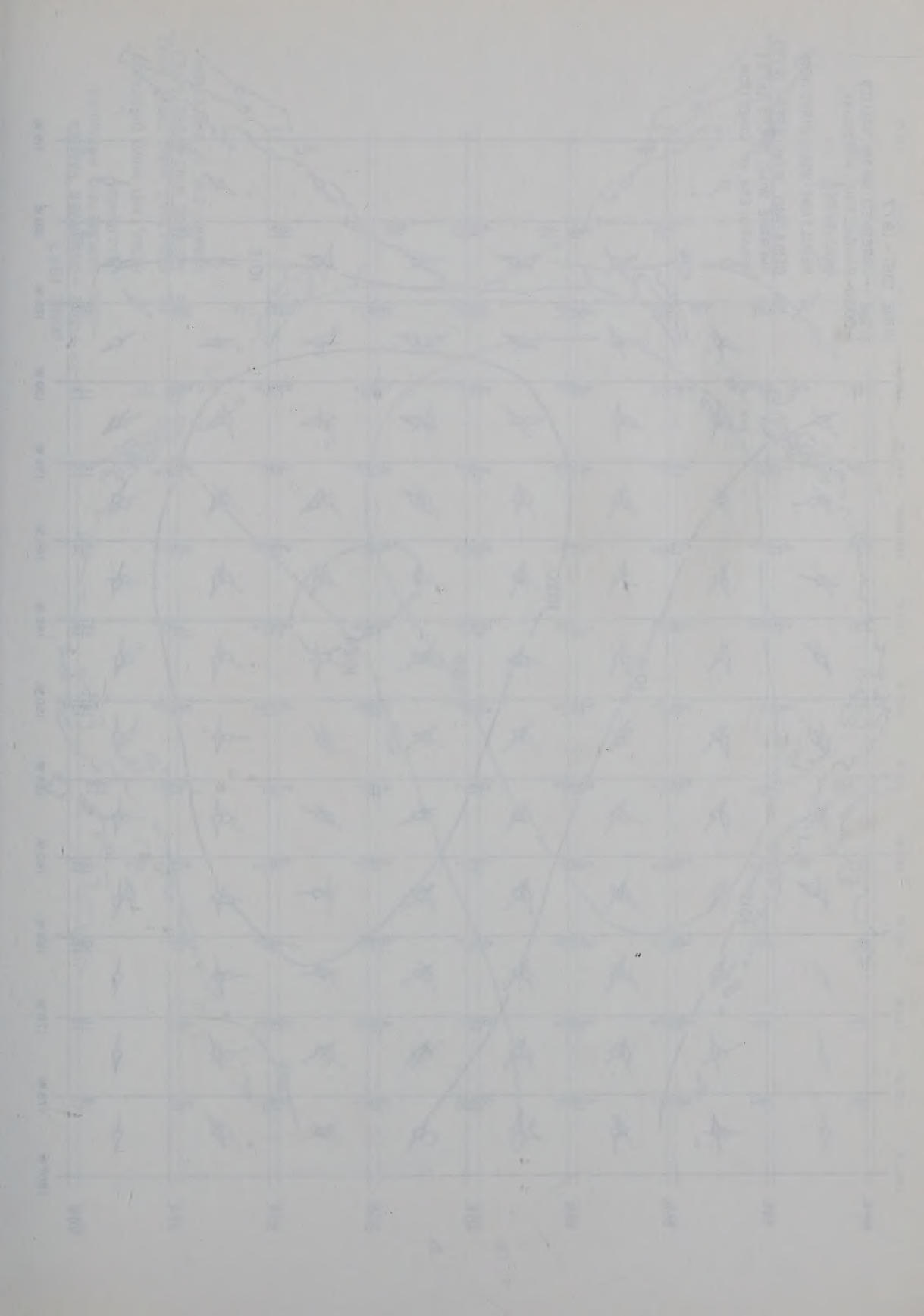
Eastern Tropical Pacific

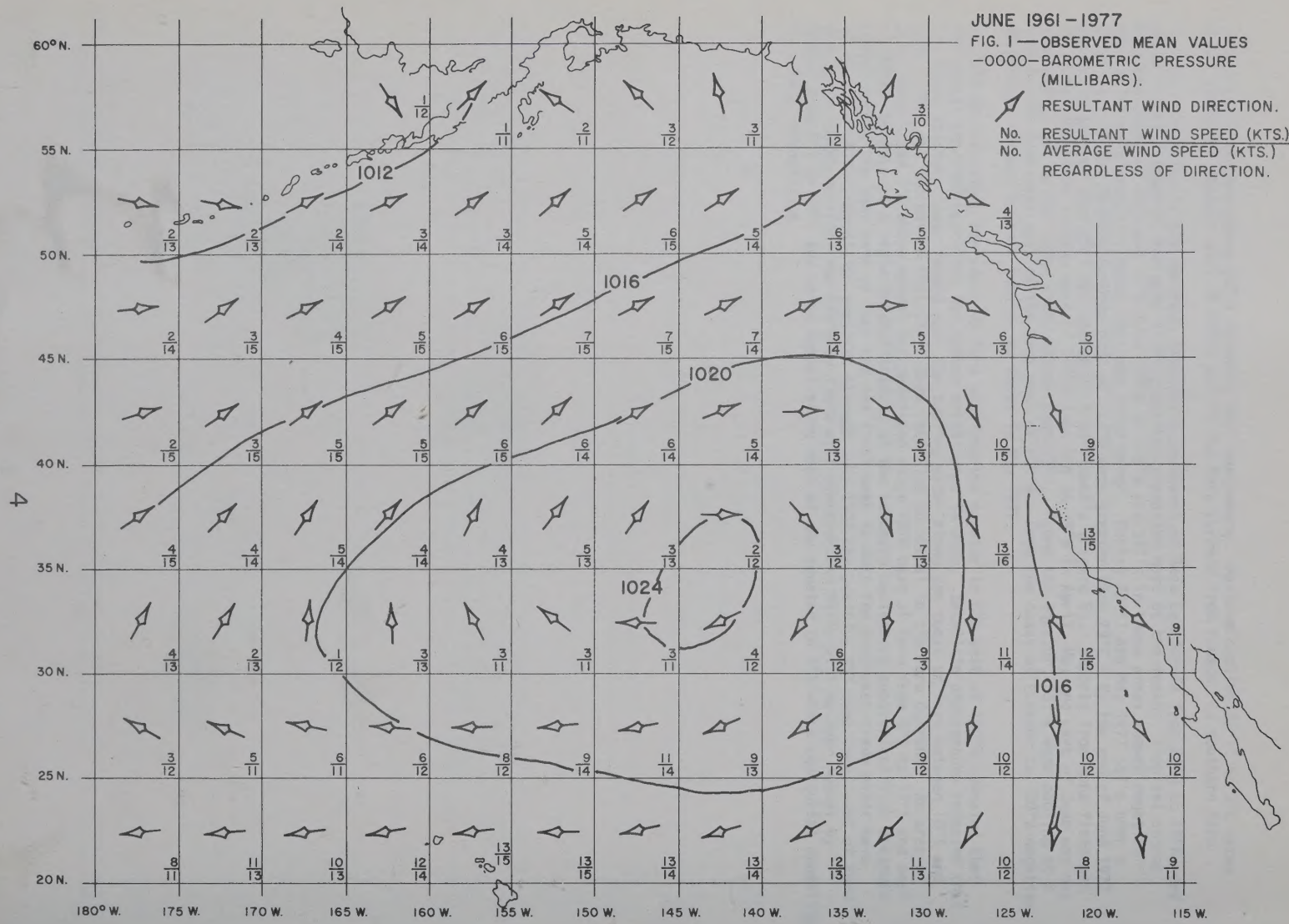
From May to June SST's normally increase in the northern hemisphere with maximum increases of 1° to 2°C west of Baja California and southward to the Revillagigedo Islands. As mid-winter approaches

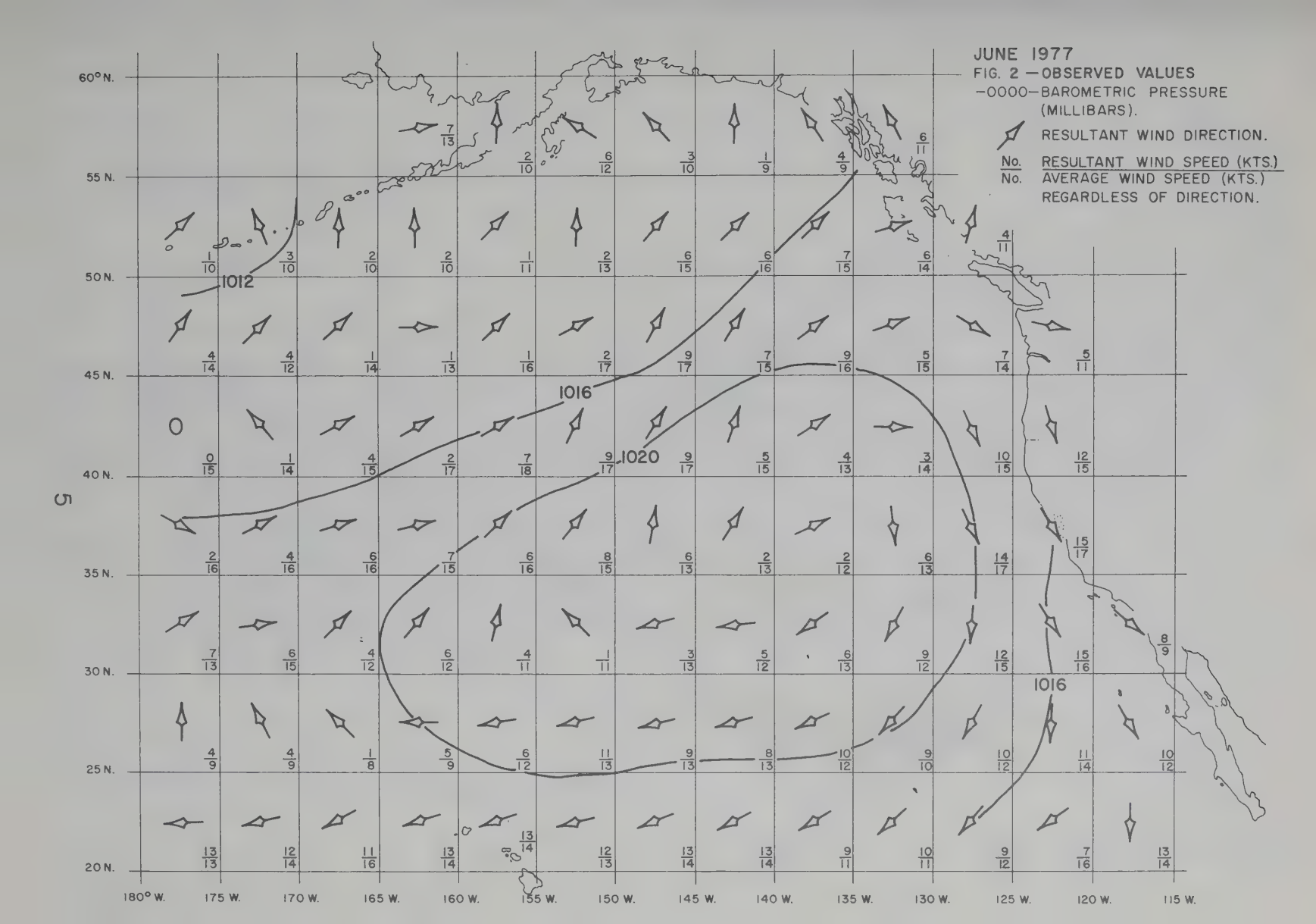
in the southern hemisphere SST's normally cool everywhere. Maximum cooling of 1° to 2°C takes place along the equator east of 120°W and in the Peru Current from Ecuador to southern Peru.

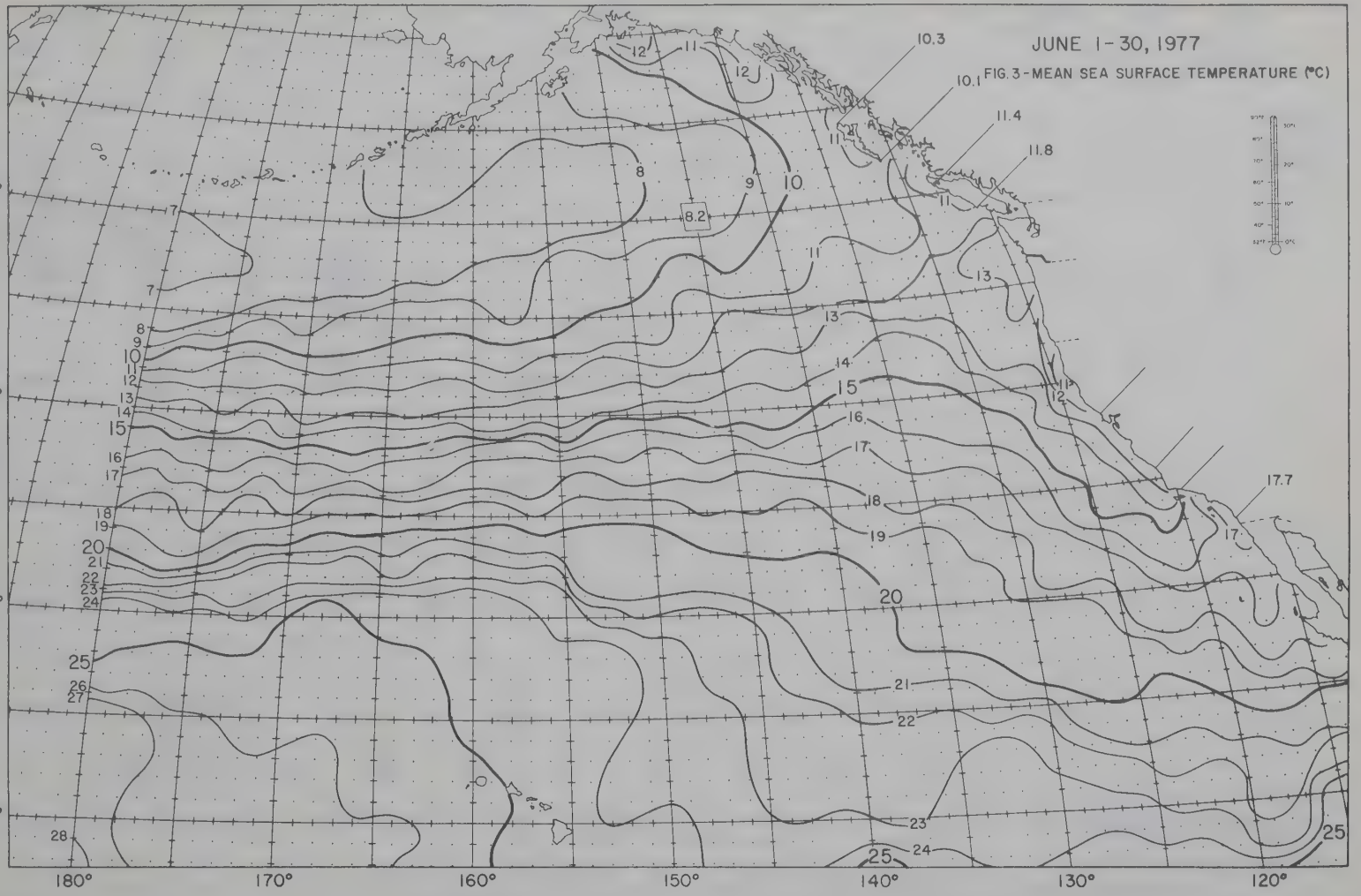
In June 1977 SST's in the northern hemisphere southwest of Baja California from 25°N to 18°N were above normal (Figure 9) and good fishing weather prevailed most of the month. Tropical storms developed between 10°N and 15°N from 120°W to 110°W and SST's in these areas showed negative departures as a result of heavy seas and cloud cover. During April and May 1977 SST's over a large part of the fishing grounds east of 110°W were greater than 29°C. By the end of June 1977 the areas greater than 29°C had decreased significantly (Figure 8). Reports from tuna fishermen indicated that tuna fishing east of 110°W from 5°N to 15°N in April, May and part of June was not good partly due to the large areas warmer than 29°C. Along the equator, SST's were cooling at a near normal rate over most of the area east of 100°W. From the coast of Ecuador to 100°W negative departures (Figure 9) were similar to those in May 1977.

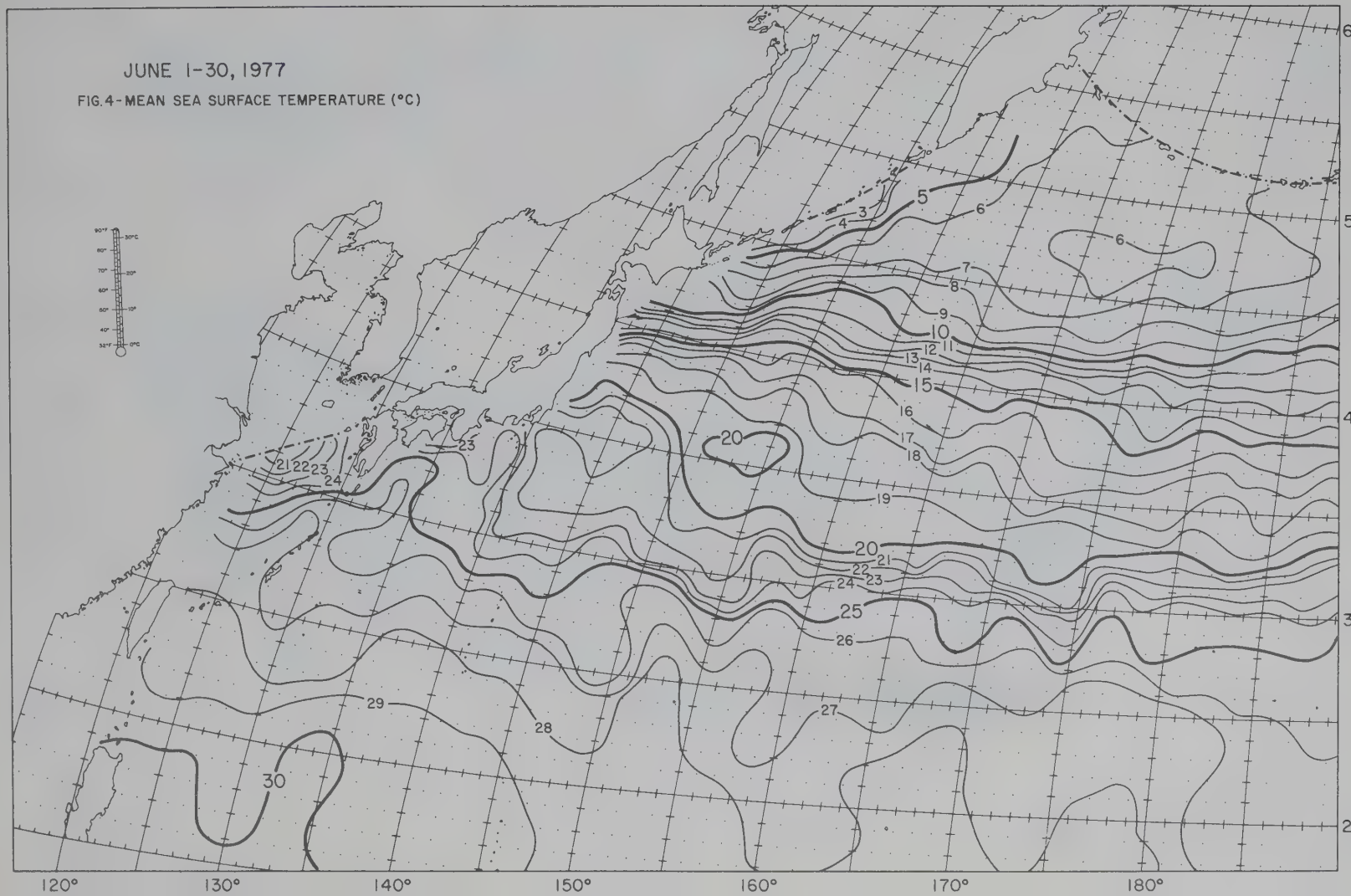
The SST pattern along the coast of Peru and from the equator to 5°S east of 100°W revealed that the normal seasonal upwelling had become established in June. Satellite photographs revealed that low level stratus clouds formed over the cooling water along the coast of Peru between 10°S and 20°S. This was indicative that SST's were returning to normal in the Peru Current. An area of SST's more than 1°C above normal has persisted since 1976 west of Peru from 8°S to 15°S and west of 88°W. Because of a rapid intensification of the southern hemisphere subtropical high pressure center during the last part of June and the first week in July the southeast trade winds have increased. If this condition persists through July 1977 the positive SST departures west of Peru and in the south Pacific from 110°W to 135°W will diminish and SST's will be near normal by August from 5°S to 20°S and below normal along most of the equator to 5°S where equatorial upwelling is slowly intensifying.

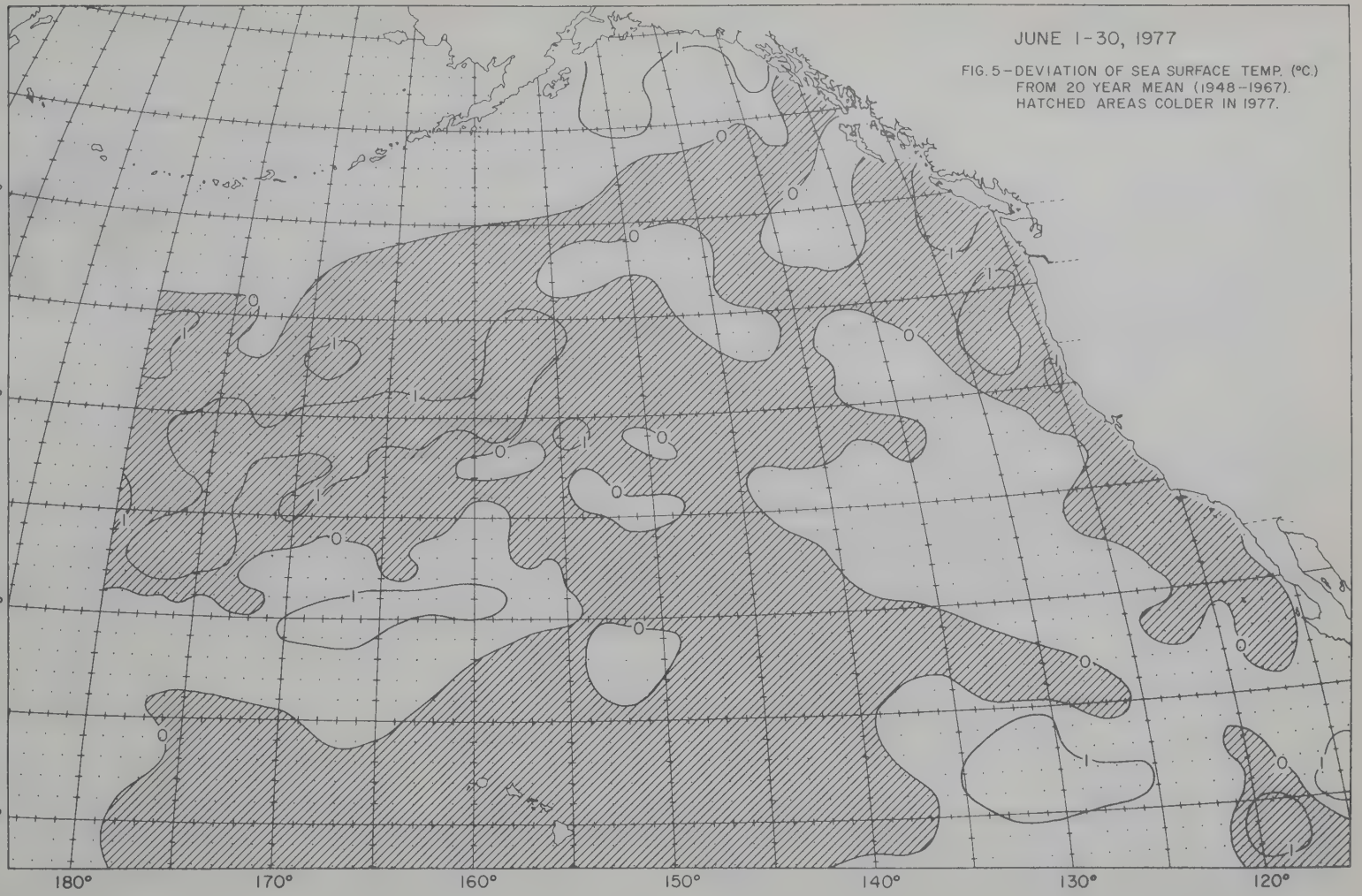


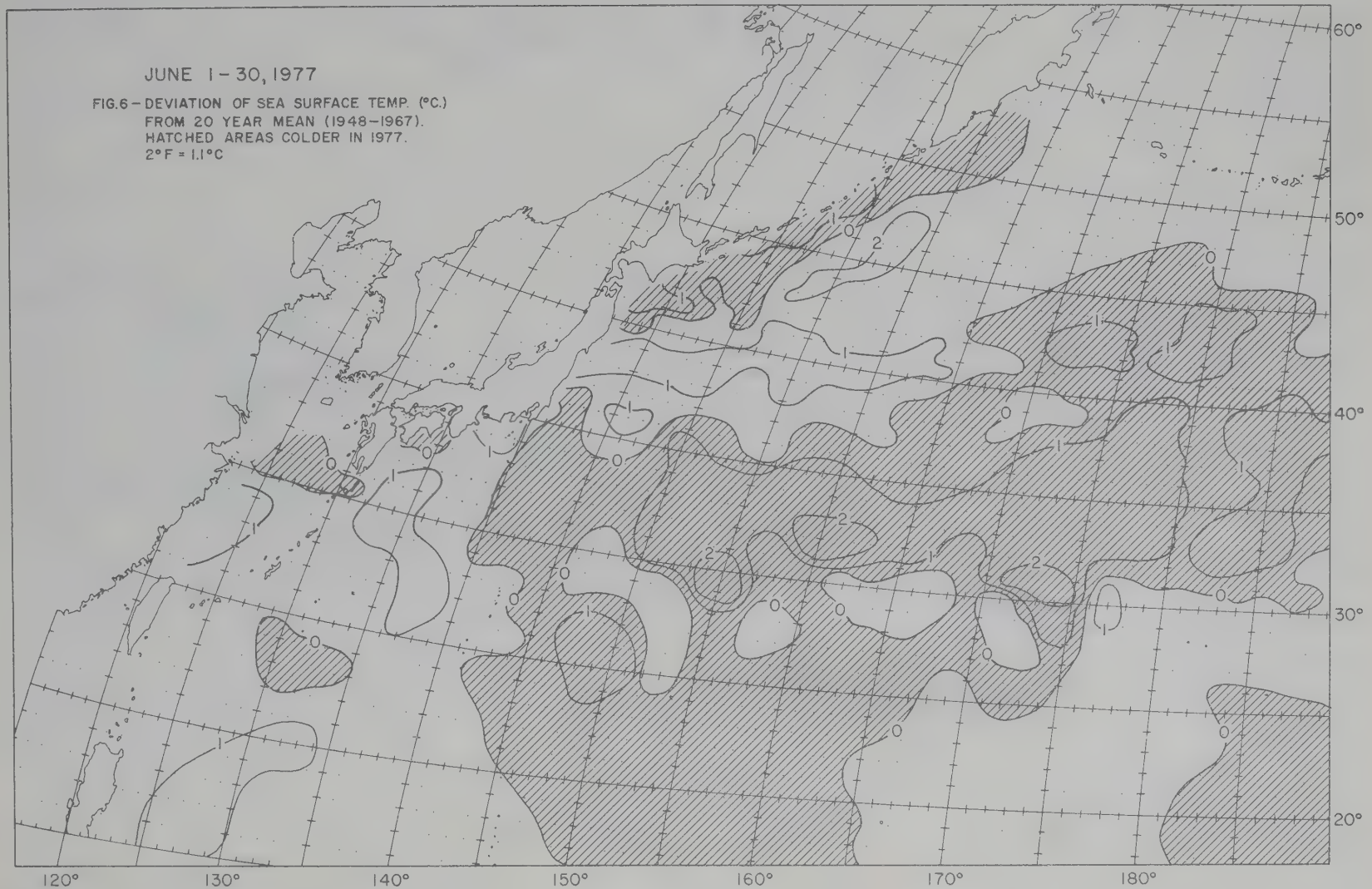

JUNE 1961 – 1977
FIG. 1 — OBSERVED MEAN VALUES
–0000– BAROMETRIC PRESSURE (MILLIBARS).
RESULTANT WIND DIRECTION.
No. RESULTANT WIND SPEED (KTS.)
No. AVERAGE WIND SPEED (KTS.) REGARDLESS OF DIRECTION.
1012
1016
1020
1024
1016
60° N.
55 N.
50 N.
45 N.
40 N.
35 N.
30 N.
25 N.
20 N.
180° W.
175 W.
170 W.
165 W.
160 W.
155 W.
150 W.
145 W.
140 W.
135 W.
130 W.
125 W.
120 W.
115 W.

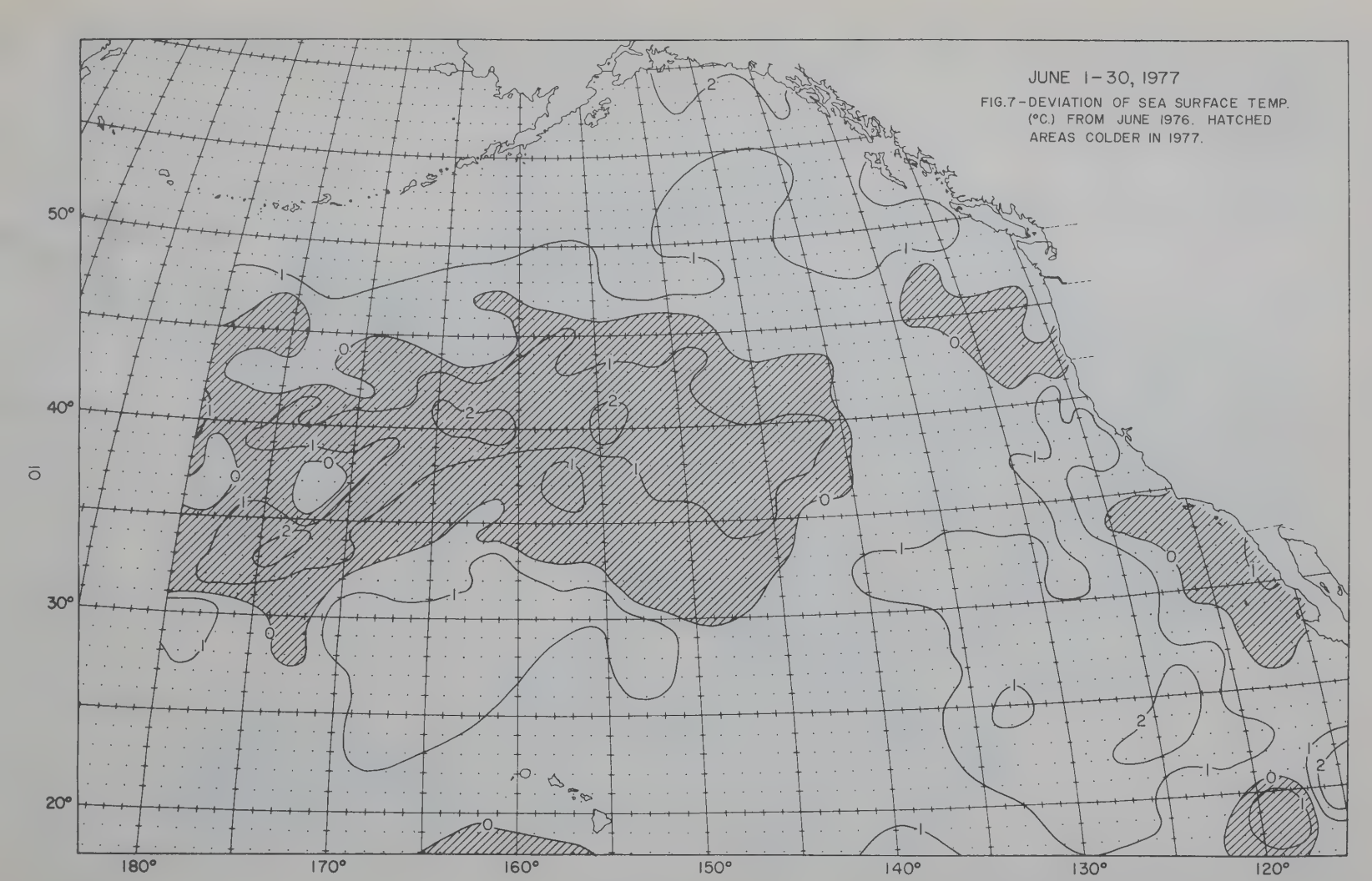

JUNE 1977
FIG. 2 — OBSERVED VALUES
-0000- BAROMETRIC PRESSURE (MILLIBARS).
RESULTANT WIND DIRECTION.
No. RESULTANT WIND SPEED (KTS.)
No. AVERAGE WIND SPEED (KTS.) REGARDLESS OF DIRECTION.
1012
1016
1020
1016
60° N.
55 N.
50 N.
45 N.
40 N.
35 N.
30 N.
25 N.
20 N.
180° W.
175 W.
170 W.
165 W.
160 W.
155 W.
150 W.
145 W.
140 W.
135 W.
130 W.
125 W.
120 W.
115 W.

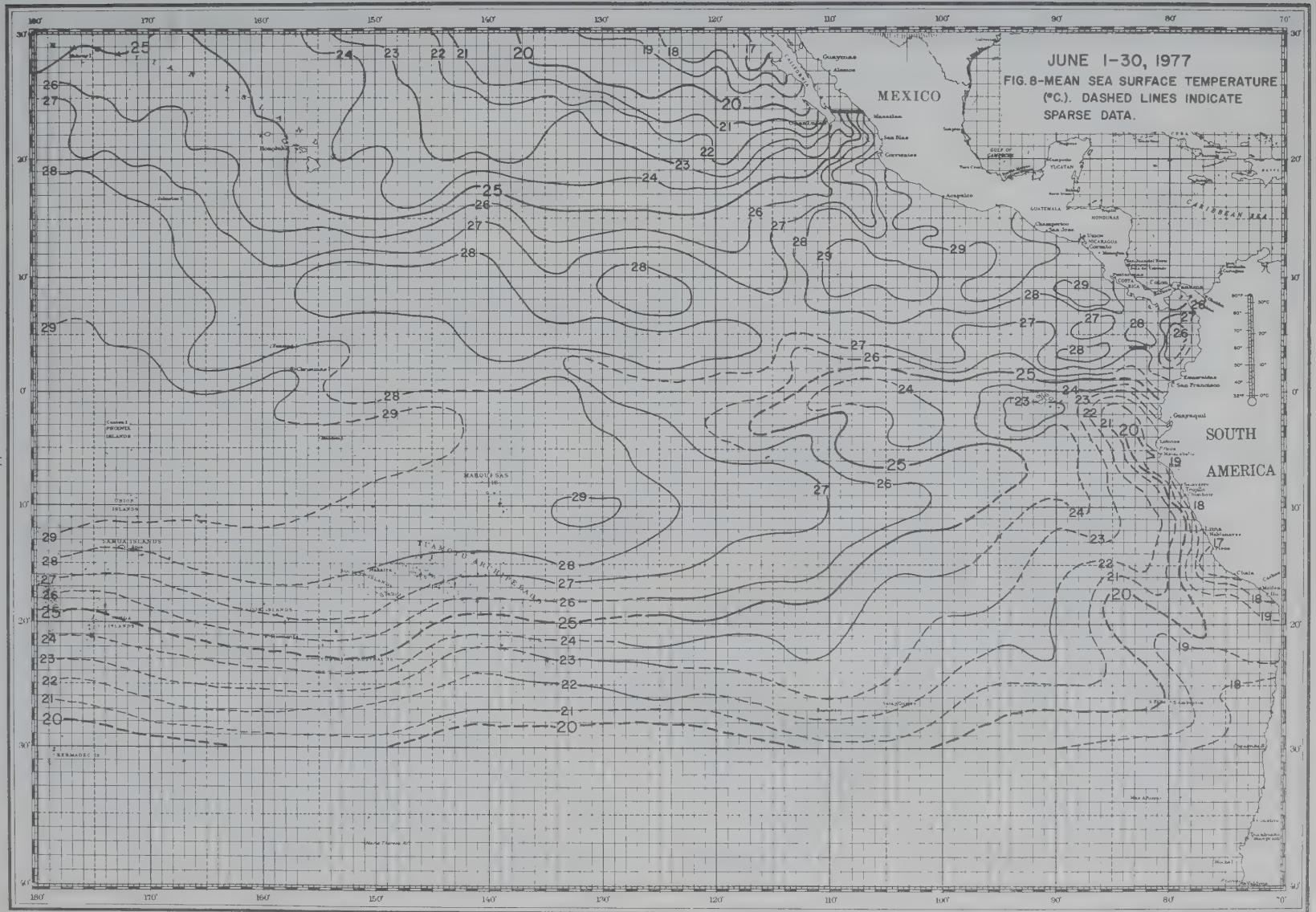

JUNE 1-30, 1977
FIG. 3-MEAN SEA SURFACE TEMPERATURE (°C)
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°
10.3
10.1
11.4
11.8
17.7
8.2


JUNE 1-30, 1977
FIG.4-MEAN SEA SURFACE TEMPERATURE (°C)
60°
50°
40°
30°
20°
120°
130°
140°
150°
160°
170°
180°


JUNE 1-30, 1977
FIG. 5 – DEVIATION OF SEA SURFACE TEMP. (°C.) FROM 20 YEAR MEAN (1948–1967). HATCHED AREAS COLDER IN 1977.
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


JUNE 1 - 30, 1977
FIG.6 - DEVIATION OF SEA SURFACE TEMP. (°C.)
FROM 20 YEAR MEAN (1948-1967).
HATCHED AREAS COLDER IN 1977.
2°F = 1.1°C
60°
50°
40°
30°
20°
120°
130°
140°
150°
160°
170°
180°


JUNE 1-30, 1977
FIG.7-DEVIATION OF SEA SURFACE TEMP. (°C.) FROM JUNE 1976. HATCHED AREAS COLDER IN 1977.
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


JUNE 1-30, 1977
FIG. 8-MEAN SEA SURFACE TEMPERATURE (°C.). DASHED LINES INDICATE SPARSE DATA.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
GUATEMALA
HONDURAS
NICARAGUA
COSTA RICA
PANAMA
GULF OF CALIFORNIA
YUCATAN
Guaymas
Mazatlan
San Blas
Acapulco
Manzanillo
Corrientes
Salina Cruz
Guayaquil
Callao
Lima
Chile
Easter I.
Galapagos Is.
Cocos I.
Clipperton I.
Revillagigedo Is.
Socorro I.
Roca Partida
Islas Marias
Isla Cedros
Isla Guadalupe
Isla Natividad
Isla San Benito
Isla Todos Santos
Isla Coronados
Isla Tortuga
Isla Isabel
Isla Maria Madre
Isla Maria Magdalena
Isla Clarion
Isla Socorro
Isla Roca Partida
Isla Cocos
Isla Malpelo
Isla Gorgona
Isla Gallo
Isla Malpelo
Isla Pinta
Isla Marchena
Isla Genovesa
Isla Santa Cruz
Isla Santa Fe
Isla San Cristobal
Isla Española
Isla Floreana
Isla Santa Maria
Isla Pinzon
Isla Rabida
Isla Seymour
Isla Baltra
Isla Daphne
Isla North Seymour
Isla Bartolome
Isla Sombrero Chino
Isla Santiago
Isla Rabida
Isla Pinzon

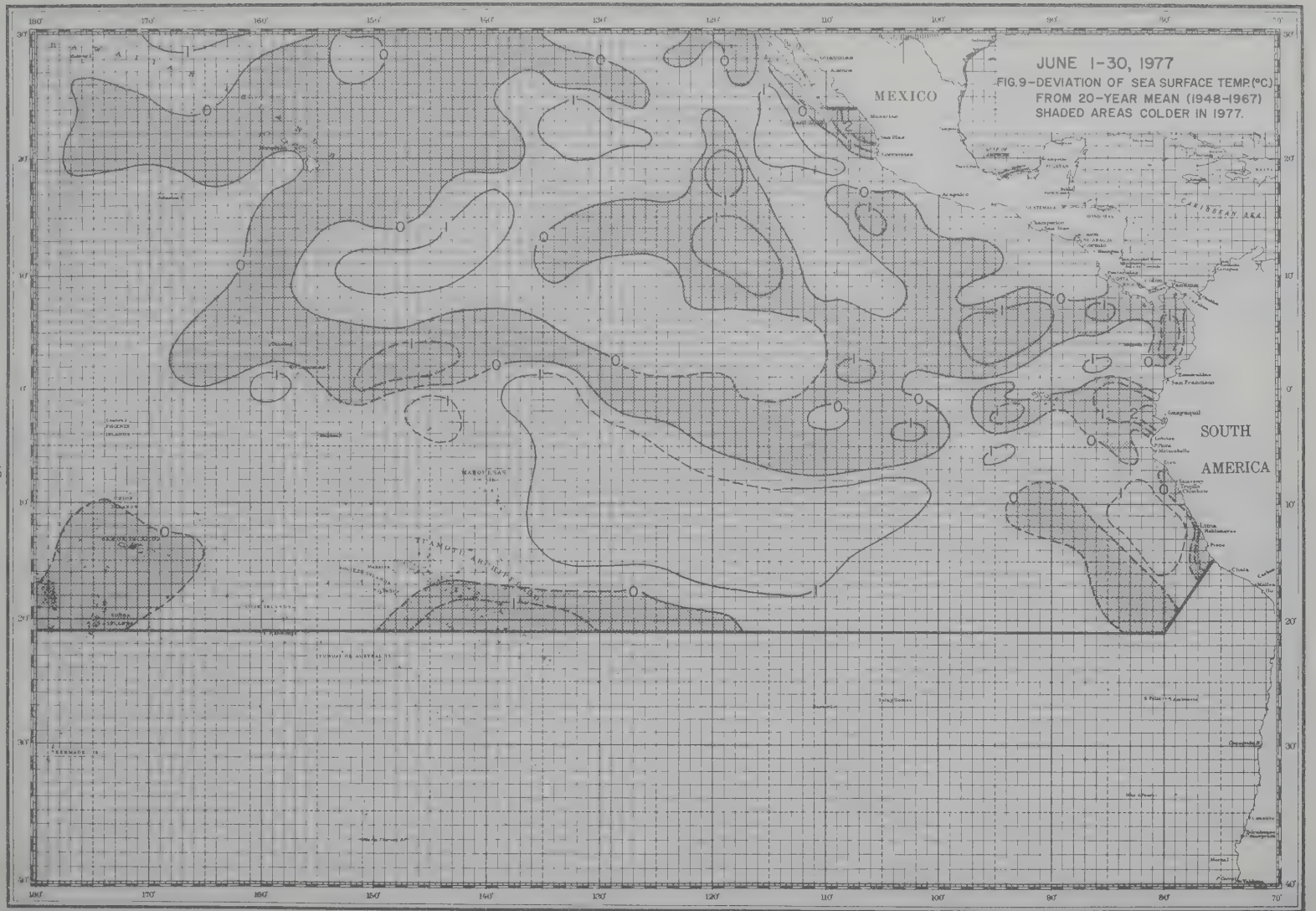

JUNE 1-30, 1977
FIG.9-DEVIATION OF SEA SURFACE TEMP.(°C.)
FROM 20-YEAR MEAN (1948-1967)
SHADED AREAS COLDER IN 1977.
MEXICO
SOUTH
AMERICA
CARIBBEAN SEA
MARQUESAS
TUAMOTU ARCHIPELAGO
180°
170°
160°
150°
140°
130°
120°
110°
100°
90°
80°
70°
30°
20°
10°
0°
30°
20°
10°
0°

FIGURE 10

SHIP CALIFORNIAN

VOYAGE 287

MATSON

CAPE FLATTERY, WASH.

- MAKAPUU PT, OAHU, HAWAII

11 JUN 1977 - 18 JUN 1977

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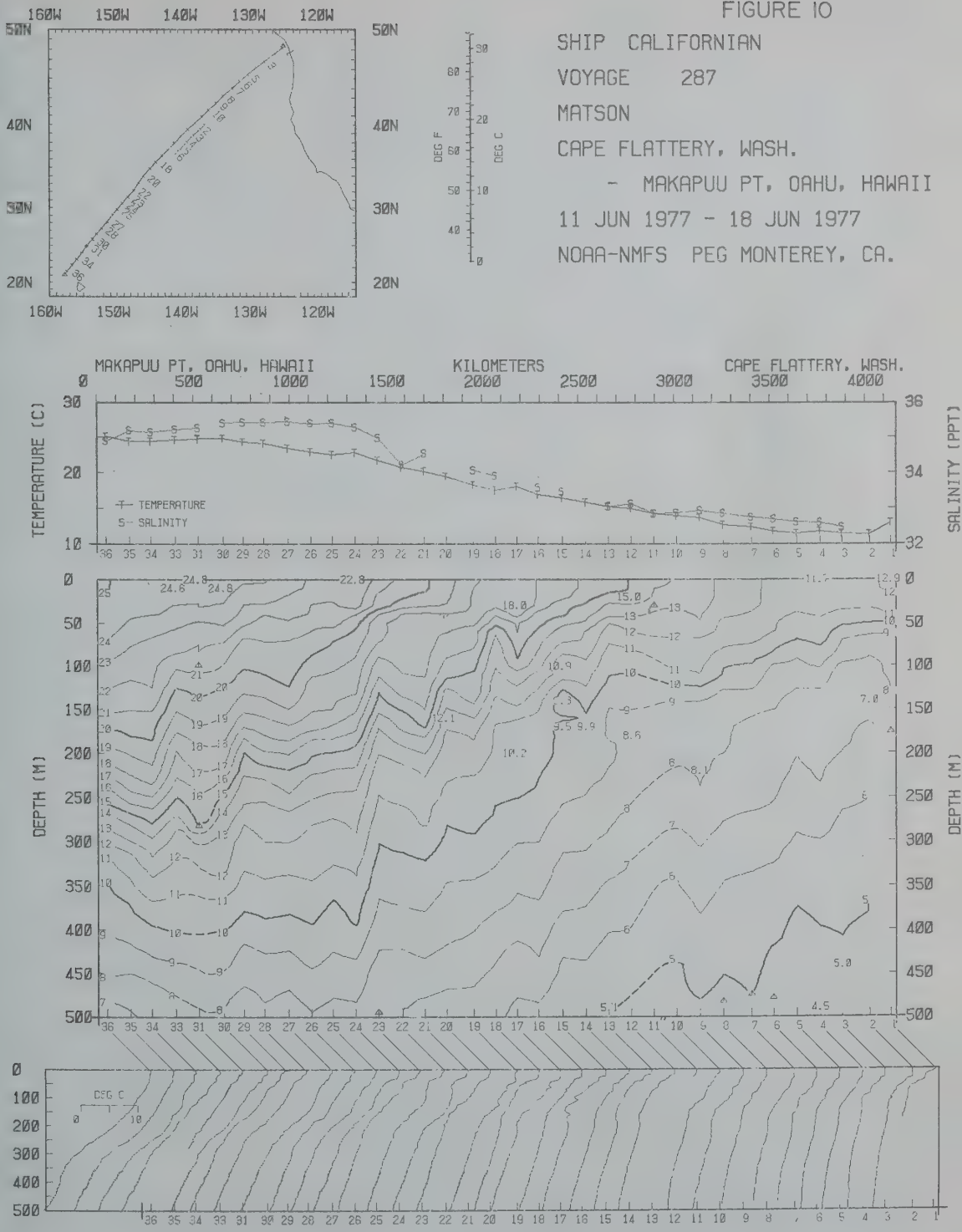

FIGURE 11

SHIP HAWAIIAN QUEEN

VOYAGE 203

MATSON

MAKAPUU PT, OAHU, HAWAII

- SAN FRANCISCO, CA.

09 JUN 1977 - 15 JUN 1977

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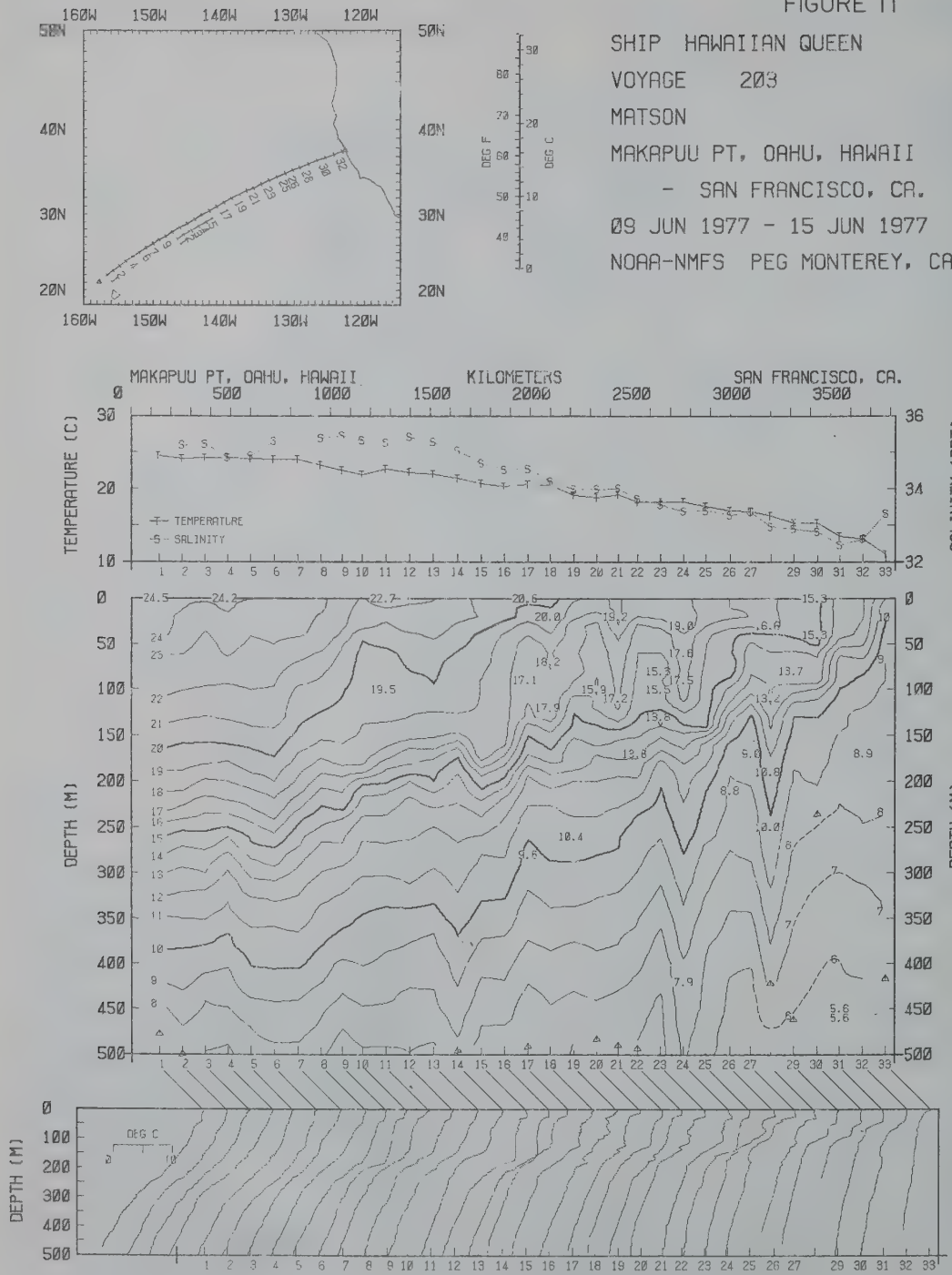

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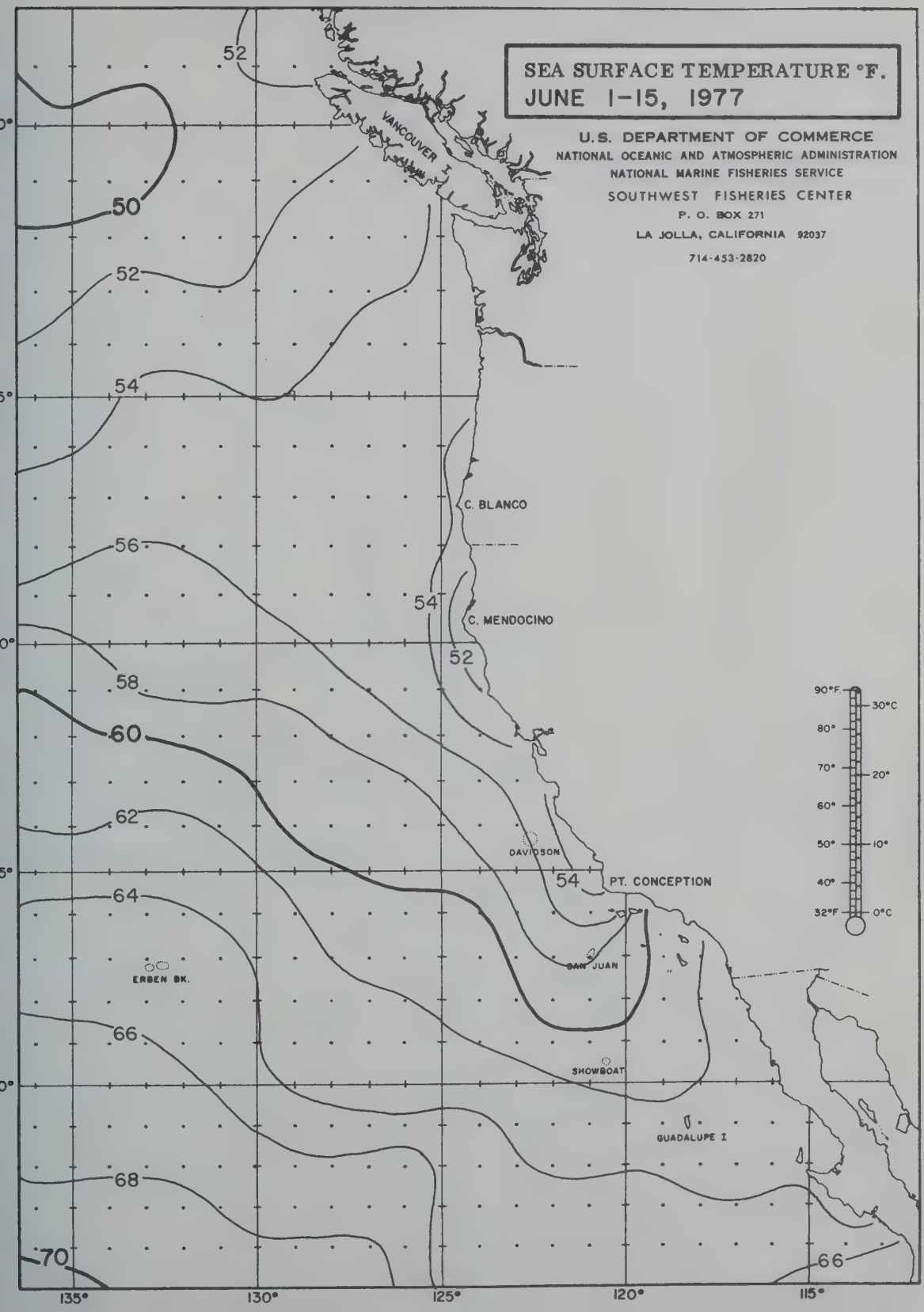

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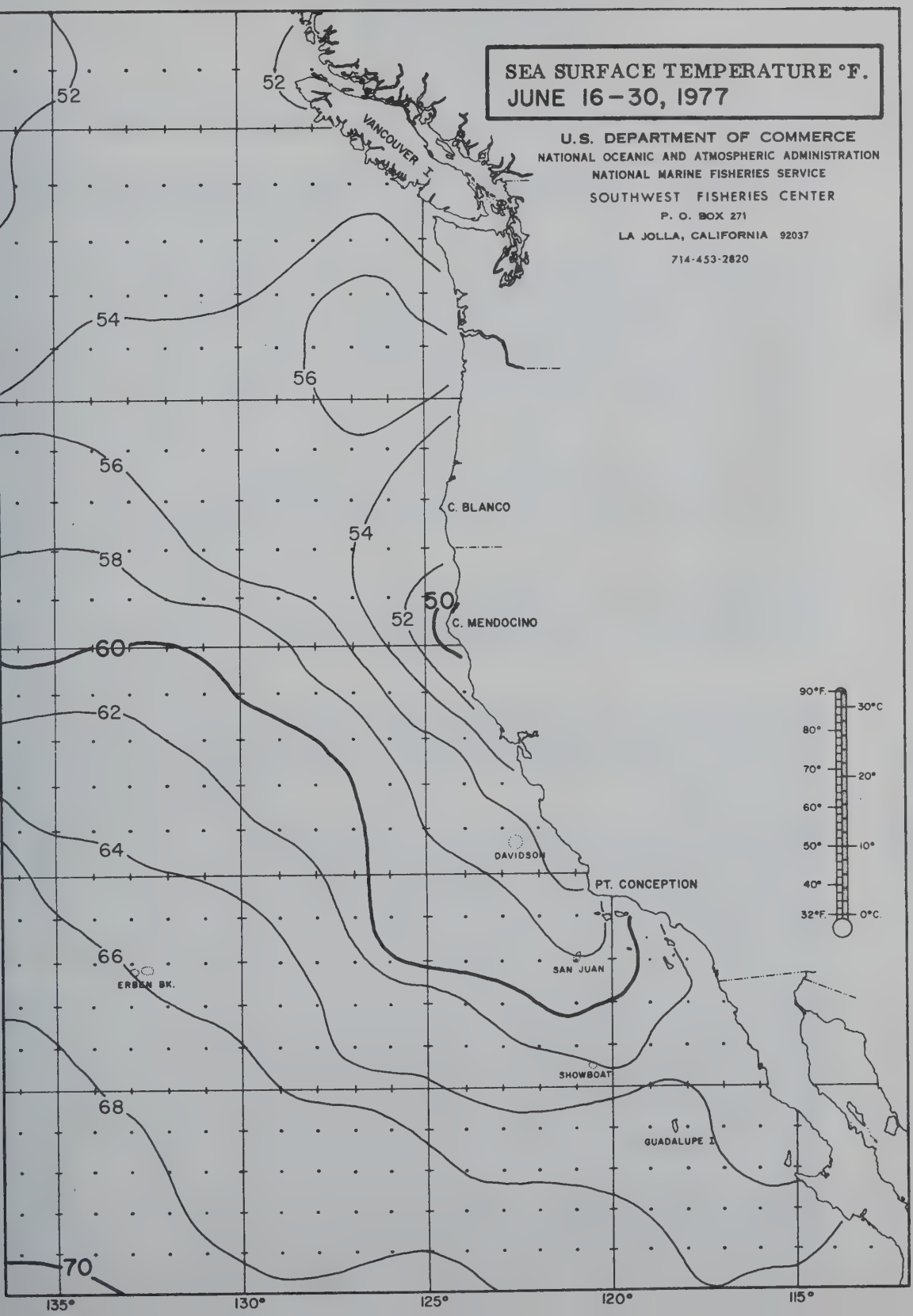

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La Jolla, California 92038

BULLETIN NO. 77-1

ALBACORE TUNA FORECAST AND COOPERATIVE RESEARCH ACTIVITIES FOR THE 1977 SEASON

It appears that a major portion of the U.S. albacore catch during the 1977 season will be taken off central and hern California and southward to Guadalupe Island. It is estimated that approximately 60% of the total catch be taken in waters south of San Francisco and 40% in waters to the north. This is similar to the distribution atch made during the 1976 fishing season.

The results of minimal pre-season scouting and the apparent relatively late development of the offshore portion he Japanese live-bait fishery in the vicinity of the Emperor Seamount chain just west of 180° suggest that at t a portion of the migration of albacore to the North American west coast may be late in arriving this season. may be the case especially for fish entering waters off the Pacific Northwest. Good early-season fishing, ver, is expected off southern California southward to about Guadalupe Island. Fishing in the offshore waters een 135° to 145°W and 32° to 35°N is expected to be good during early season this year. Strong temperature ts are present in the offshore area which should aid in concentrating fish. These strong temperature frontal itions may also contribute to a late arrival of fish nearshore if fish spend time feeding in the offshore waters.

The outlook for sportfishing off southern California is good and a few boats have already caught albacore hwest of San Diego.

In order to help the U.S. albacore fleet develop their fishing strategy, the American Fishermen's Research dation has selected the Lady Olga, Lusty and Four Seas to conduct albacore scouting activities during the 1977 on. The Lady Olga was scheduled to leave Santa Barbara on June 15 and will be scouting the southern California uadalupe Island area. The Lusty and Four Seas will begin their cruises on July 5 and 13, respectively, and will in waters from central California and northward. These vessels will also tag albacore and make oceanographic meteorological observations.

The National Marine Fisheries Service's R/V David Starr Jordan is currently conducting oceanographic studies doing some trolling for albacore in the offshore waters west of San Diego. The Jordan reported a catch of four core in the Erben Bank area on June 12 and small catches on June 13-14 as it moved westward to approximately miles west of Erben Bank. These albacore averaged 12 to 20 pounds. Sea surface temperatures were 18.4-19.9°C 1-67.8°F).

Seasonal warming of sea surface temperatures (SST) progressed at a rate slightly below normal during June 1-15, over a large part of the eastern Pacific east of 130°W and from 47°N to 35°N. Based on forecast winds and sures provided by the National Weather Service, this trend should continue for the last half of June. It is cted that the biggest departures of SST's from normal will occur from Cape Mendocino to Point Conception during next 15 days as continued ocean mixing and coastal upwelling maintain a strong, surface temperature gradient 50 to 100 miles off shore.

The Extended Forecast Division of the National Weather Service has forecast that during June the eastern Pacific pressure center will be centered near 35°N, 135°W with above-normal pressures in the center of the high. Over western U.S., the National Weather Service expects below-normal pressures over the western part of the U.S. with e-normal northerly winds along the coasts from Washington to southern California. During the first half of 1977 the weather conditions have been similar to those forecast except the high pressure center has been closer 0°N, 135°W. After the first week in June, strong northerly surface winds developed along the coast to about 35°N tal upwelling and ocean mixing off the coasts of Oregon and California are causing SST's to be slightly below al to 35°N. This trend in above-normal coastal upwelling should continue for the remainder of June.

Daily broadcasts of albacore fishing information will also be prepared by the La Jolla Laboratory and will be smitted over marine and commercial radio bands again this year. The broadcasts will be made twice daily on week- and once on Saturday mornings from July 11 through October 31, or until the albacore season ends. The broad- s will include the latest albacore fishing information obtained from research vessels, cooperating fishing els, unloading station operators and other sources. Highlights will include location of active centers of fishin cal fishing scores, size of fish, sea surface temperature and subsurface temperature information when available, other information as appropriate. Sportboat albacore fishing activity will also be included. A weather and sea e summary prepared by the National Weather Service will also be given and will include large-scale weather tures, regional wind, weather and sea state conditions between 20-250 miles offshore and storm development. NMFS also transmit weekly charts of sea surface temperature via radio facsimile over radio station WWD on Fridays 0:00 PDT on 8644.1 kHz beginning July 1.

Nearly coast-wide reception of the albacore fishery advisory broadcasts will be available again this year. The adcasts will be transmitted by 1) radio station WWD, which is licensed to the NMFS and located on the Scripps titution of Oceanography (SIO) campus at La Jolla, California, 2) Coast Guard radio station NMC at Point Reyes, radio station KRED in Eureka, California, and 4) radio station KNPT in Newport, Oregon. The schedule and fre- ncies for the broadcasts are as follows:

WWD (La Jolla, Ca.) on SSB carrier frequencies 4409.4, 8644.1, 8789.6, and 12424.5 kHz at 0615 and 1745 PDT weekdays and 0815 PDT on Saturdays.

NMC (Point Reyes Coast Guard) on AM compatible frequency 2670 and on SSB carrier frequency 8760.8 at 0645 and 1945 PDT.

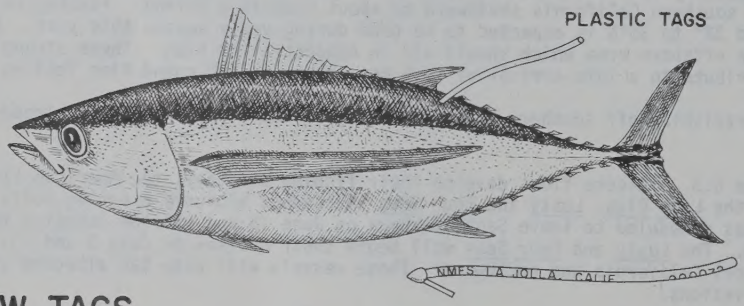
KRED (Eureka, Ca.) on commercial AM 1480 kHz at 0605 and 2005 PDT.

KNPT (Newport, Ca.) on commercial AM 1310 kHz at 0615 and 1830 PDT.

To determine the upper sideband assigned frequencies for tunable receivers, add 1.4 kHz to WWD and NMC carrier frequencies.

$ REWARD $

FOR ALBACORE TUNA TAGS



YELLOW TAGS

THE NATIONAL MARINE FISHERIES SERVICE WILL PAY $ 2.00 FOR EACH YELLOW TAG RECOVERED. (NO NEED TO RETURN FISH)

RECORD:

- WHERE
- WHEN
- HOW

} *FISH WAS CAUGHT*

- LENGTH OF FISH (TIP OF LOWER JAW TO FORK OF TAIL)

FORWARD TO NMFS ADDRESS ON TAG

RED TAGS

THE NATIONAL MARINE FISHERIES SERVICE WILL PAY $ 50.00 FOR EACH RED TAG & FISH RETURNED. (FISH WITH TAG INTACT MUST BE RETURNED)

RECORD:

- WHERE
- WHEN
- HOW

} *FISH WAS CAUGHT*

- LENGTH OF FISH (TIP OF LOWER JAW TO FORK OF TAIL)

NOTIFY NMFS P.O. BOX 271, LA JOLLA, CA. TEL. (714) 453-2820

THE AMERICAN FISHERMEN'S RESEARCH FOUNDATION WILL AWARD CASH PRIZES FOR YELLOW & RED TAG NUMBERS DRAWN IN AN ANNUAL LOTTERY.

June 16, 1977

Staff, Albacore Fisheries Program
R. Michael Laurs, Leader

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL MARINE FISHERIES SERVICE
Southwest Fisheries Center
La Jolla, California 92038

BULLETIN No. 77-2

ALBACORE FISHERY OFF TO EARLY BUT SLOW START

A small fleet of jig vessels has been fishing for albacore south of San Diego and some vessels have left central northern California ports to begin fishing. A price settlement of $1165 per ton has been reached with one ery.

An estimated 15-20 commercial boats began working from 60 miles south of San Diego to Cedros Island during the 2 weeks of June. Apparently, the best area of fishing was between San Martin Island and Guadalupe Island where y catches were generally less than 50 fish per boat and top catches were between 120-150 fish for a couple of . Small catches, meanwhile, were reported west of the Davidson Seamount on June 28 and off Point Arguello on 29.

San Diego sportboats have also begun to fish for albacore 70-90 miles south of San Diego. During June 26-29, hes were about one fish per passenger.

The F/V Lady Olga which is on charter to the American Fishermen's Research Foundation (AFRF) left Santa Barbara une 15 and has scouted for albacore from 250 miles southwest of Point Conception and southward to the Guadalupe nd area. Catches have been small, however, the Lady Olga did report a catch of 15 albacore on June 16 southwest oint Arguello and 17-32 fish scores on June 23-25 in the Guadalupe Island vicinity. These catches were in 14.4-°C (58-59°F) and 16.9-17.8°C (62.5-64°F) sea surface temperature waters, respectively. These fish averaged 12 2 pounds.

The second AFRF-chartered jigboat, Lusty, is scheduled to leave Ventura, California on July 5 and will head ward off Point Arguello before heading north.

The National Marine Fisheries Service's R/V David Starr Jordan was conducting oceanographic studies and some core trolling between 29°45'-39°N latitude and 135-140°W longitude from June 15-29. One June 16, the Jordan rted a catch of 67 fish between 32°30'-33°N and 137°30'-138°30'W while trolling for approximately 8 hours. These were mostly 7 and 11 pounds. Catches in other offshore areas have been much smaller. Three commercial boats also been in the offshore areas and these boats have also had small catches.

During the last half of June, sea surface temperatures (SST) warmed at slightly above-normal rates over most of heast Pacific east of 135°W. One exception to this occurred along the U.S. west coast from 37°N to 44°N where ng offshore surface winds intensified coastal upwelling and increased offshore ocean mixing. The below-normal s (less than 54°F along the coast) were caused primarily by coastal upwelling in an area where the northeasterly s were strongest between a persistent and intense Pacific high pressure center near 37°N, 135°W and below-normal sures in the interior coastal regions of California. Above-normal surface heating helped to intensify the coastal pressure trough and maintain offshore winds from 45°N to 37°N.

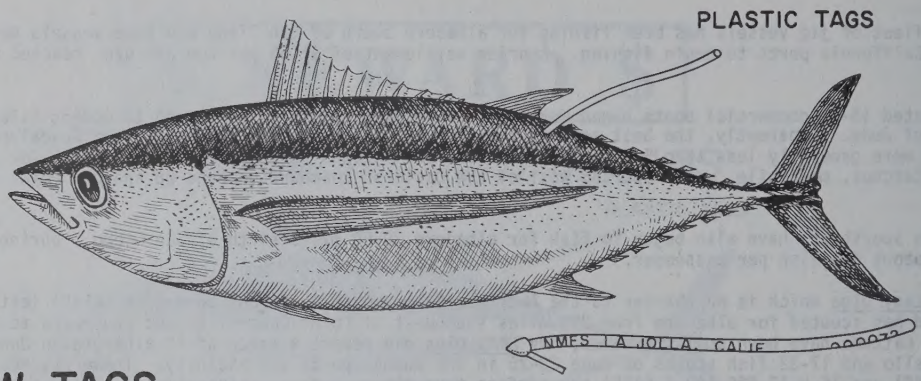
The Long Range Prediction Group, National Weather Service, Washington, D.C., forecast for July 1977 above-normal ace pressures off the coast centered near 40°N, 140°W. The coastal region of California will continue to have a -developed heat low. As a result, above-normal offshore northerly surface winds are expected to continue and tal upwelling is expected to keep SST's below normal from 45°N to 35°N. The lowest SST's are expected between Blanco and Cape Mendocino (see chart). West of 125°W, SST's are expected to continue warming at a rate slightly e normal.

30, 1977

Staff, Albacore Fisheries Program
R. Michael Laurs, Leader

$ REWARD $

FOR ALBACORE TUNA TAGS



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